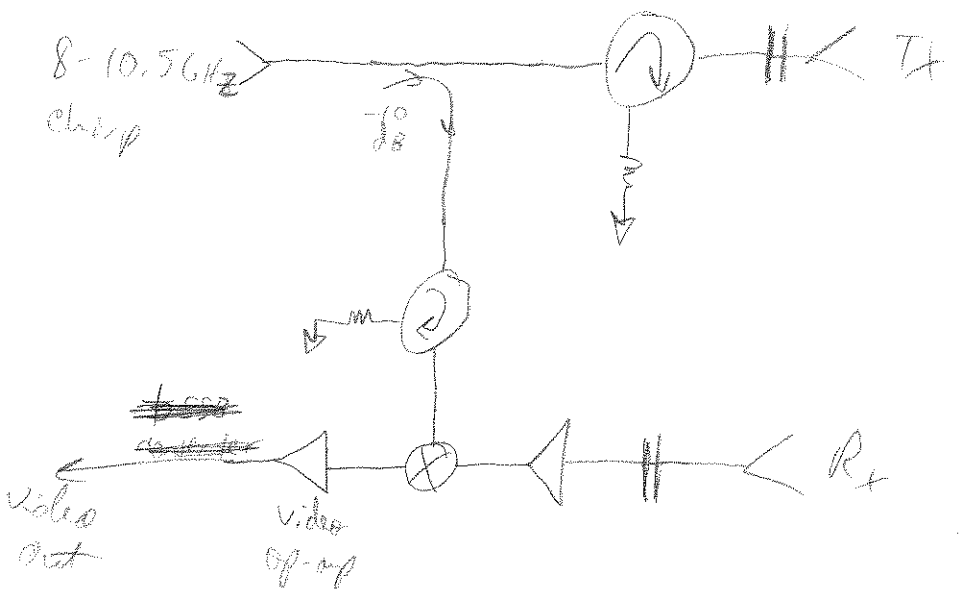
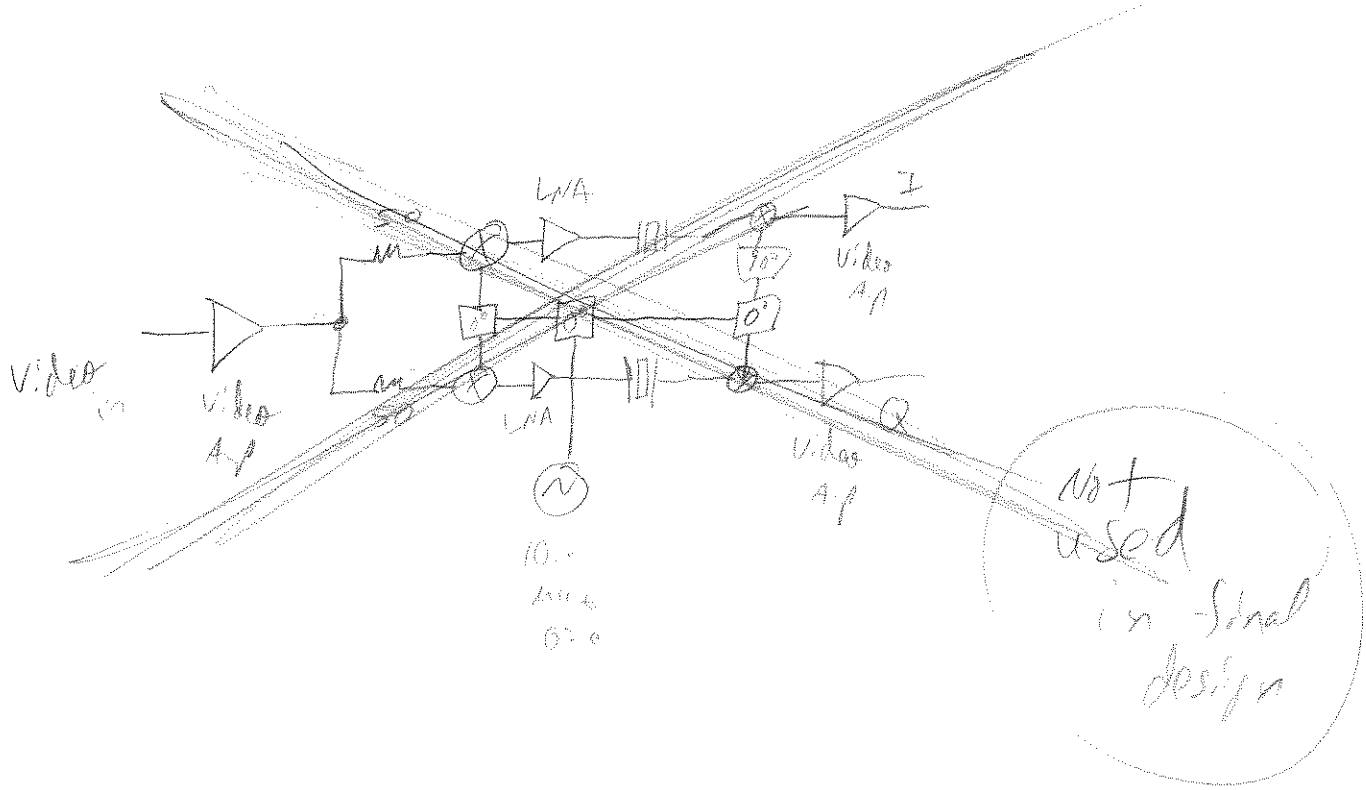
Radar Block Diagram:



Front block diagram



Data on components used (misc. surplus)

Cable attenuation:

	S_{21} cal
12.5 GHz	4.4 dB
8.175 GHz	3.4 dB
5.346 GHz	2.72 dB

Isolator #1 (ISO 1)

	S_{12}
5.346 GHz	-18.5 dB
6.666 GHz	-29.07 dB
8.01 GHz	-28.2 dB
8.636 GHz	-17.4 dB
8.90 GHz	-10 dB
9.606 GHz	-9.62 dB
10.0 GHz	-7.9 dB
11.56 GHz	-2.67 dB
12.22 GHz	-21.93 dB
12.67 GHz	-7.2 dB

Isolator #2 (ISO 2)

	S_{12}
5.346 GHz	-10.4 dB
5.96 GHz	-13.63 dB
7.016 GHz	-20.2 dB
~~8.26 GHz~~	~~-41.5 dB~~
8.73 GHz	-44.0 dB
10.366 GHz	-21.82 dB
11.456 GHz	-40.1 dB
11.91 GHz	-22.84 dB
12.67 GHz	-15.02 dB

Mixer #1 (MXR1)

-3.5 dB loss

f_{LO} = 10 GHz, +15 dBm

f_{RF} = 10.156 Hz, 0 dBm

Mixer #2 (MXR2)

-6 dB loss

f_{LO} = 10 GHz, +10 dBm

f_{RF} = 10.15 GHz, 0 dBm

Mixer #3 (MXR3)

-10 dB loss

f_{LO} = 10 GHz, +10 dBm

f_{RF} = 10.15 GHz, 0 dBm

Note: RF and LO ports are reverseable, could be a single balanced mixer

Amplifier 1 (LNA 1)

	S_{21}	IP_1
5.31 GHz	~~+17.5dB~~ ~~+17.5dB~~ ~~+14.5dB~~ +12.75dB	+18dBm
6.196Hz	+23dB	~~+23dBm~~ +19.5dBm
6.52GHz	~~+23.3dB~~ +27.3dB	~~+23.3dBm~~ +20.5dBm
9.50GHz	+23dB	~~+24.3dBm~~ +21.5dBm
10.12GHz	+20dB	~~+23.0dBm~~ +21.3dBm
10.42GHz	+17dB	~~+23.0dBm~~ +19.5dBm
10.656Hz	+14dB	~~+21.6dBm~~ 18dBm
10.79GHz	+11dB	+17dBm
11.22GHz	+8dB	+15dBm
11.296Hz	~~+6dB~~ +6dB	+14dBm

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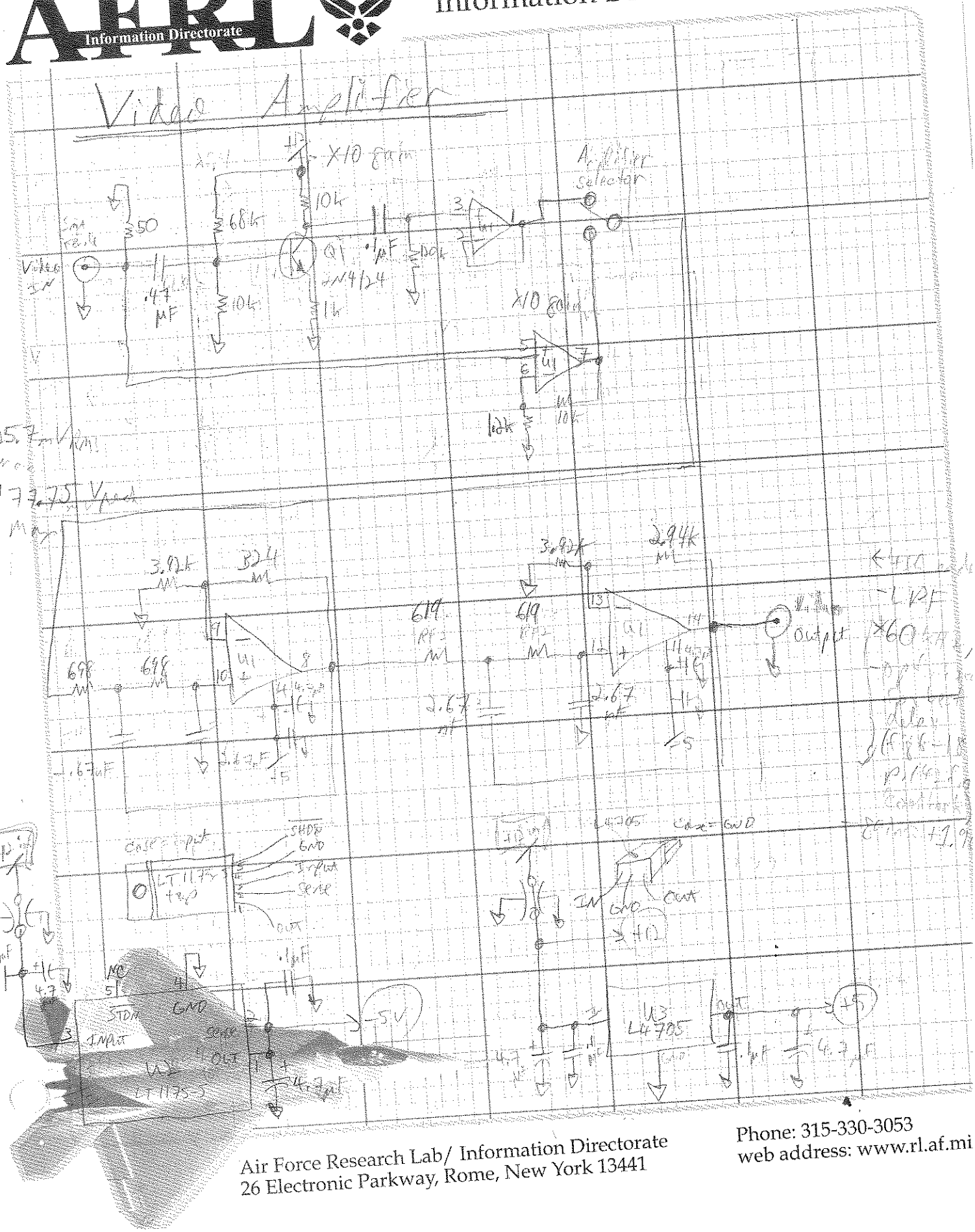

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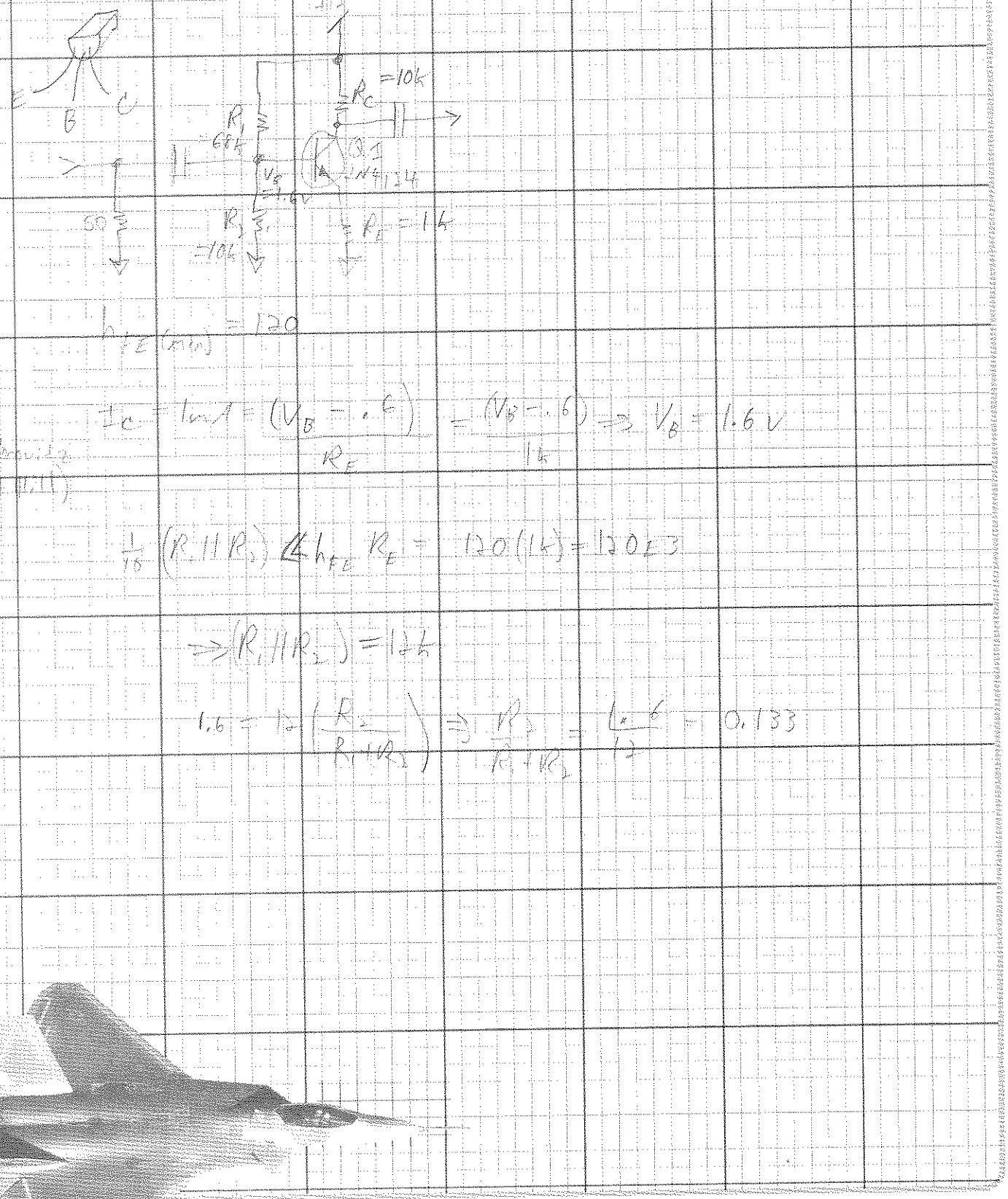

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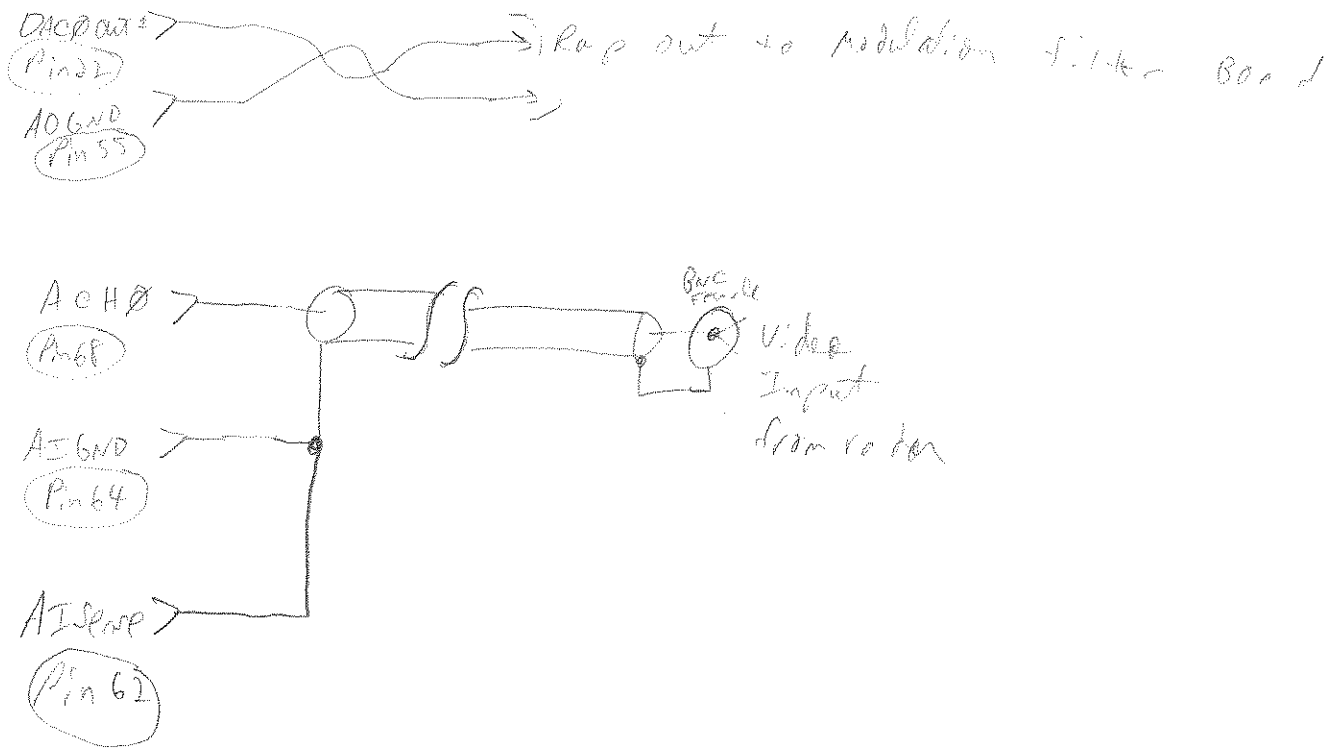
Misc I/O Connector Wiring:



$1.52 - .14 = 1.380$

Rear Panel Connections

X / Y Motor Connectors:

	Pin	Job	Motor Wire Color
X axis	A	A_x	Red
	B	B_x	Grn
	C	C_x	Yel
	D	D_x	Blu
	E	+5	Wht
	F	+5	Blk
	G	A_y	
	H	B_y	
Y axis	I	C_y	
	J	D_y	
	K	+5	
	L	+5	
	M	NC	
	N	NC	

Main Power Connector:

Pin	Job	Color on Pushcable
A	?	
B	+12	Red
C	?	
D	?	
E	-12	Blk
F	+15	Wht
G	GND	Grn

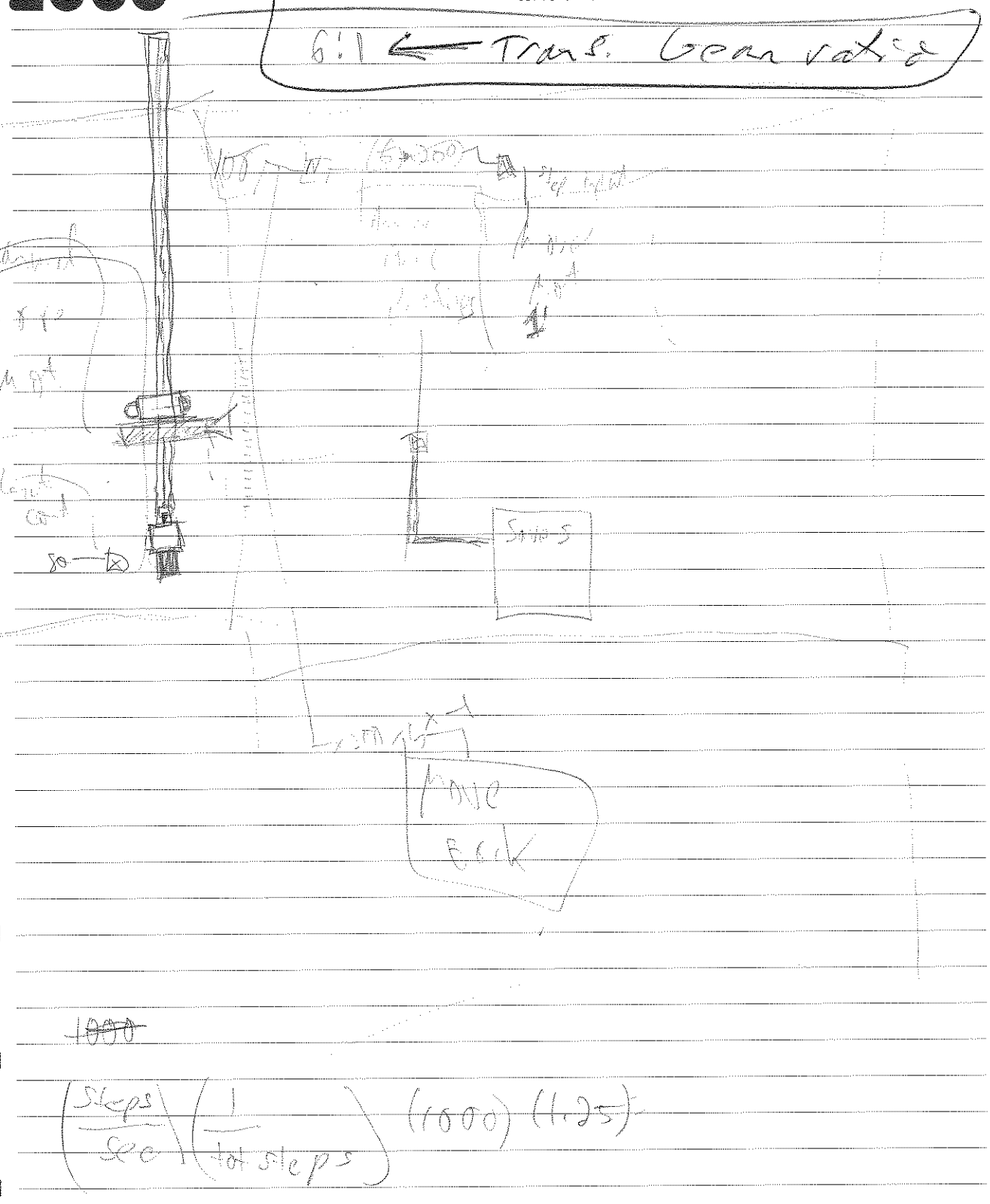
Motor Connector:

Pin	Mot. Wire	Pin on Mot. Ctrlr.	Job	Pin on DB9 Male	Misc. Extra w.'s
A	Red	A	Mot Phase AB		Blue
B	Grn	B		?	
C	Yel	C	Mot Phase CD		
D	Blu	D			
E					
F					
G					
H					
I					
J			GND	Pin 5	Shield
K			RxD	Pin 2	Blk
L			TxD	Pin 3	Wht
M	—	—	NC		
N	—	—	NC		

RMV Motor Controller Connections

+B } +12VDC
GND }

MGND	A	B	C	D	+VM
↓	Grn	Red	Blu	Yel	+28VDC



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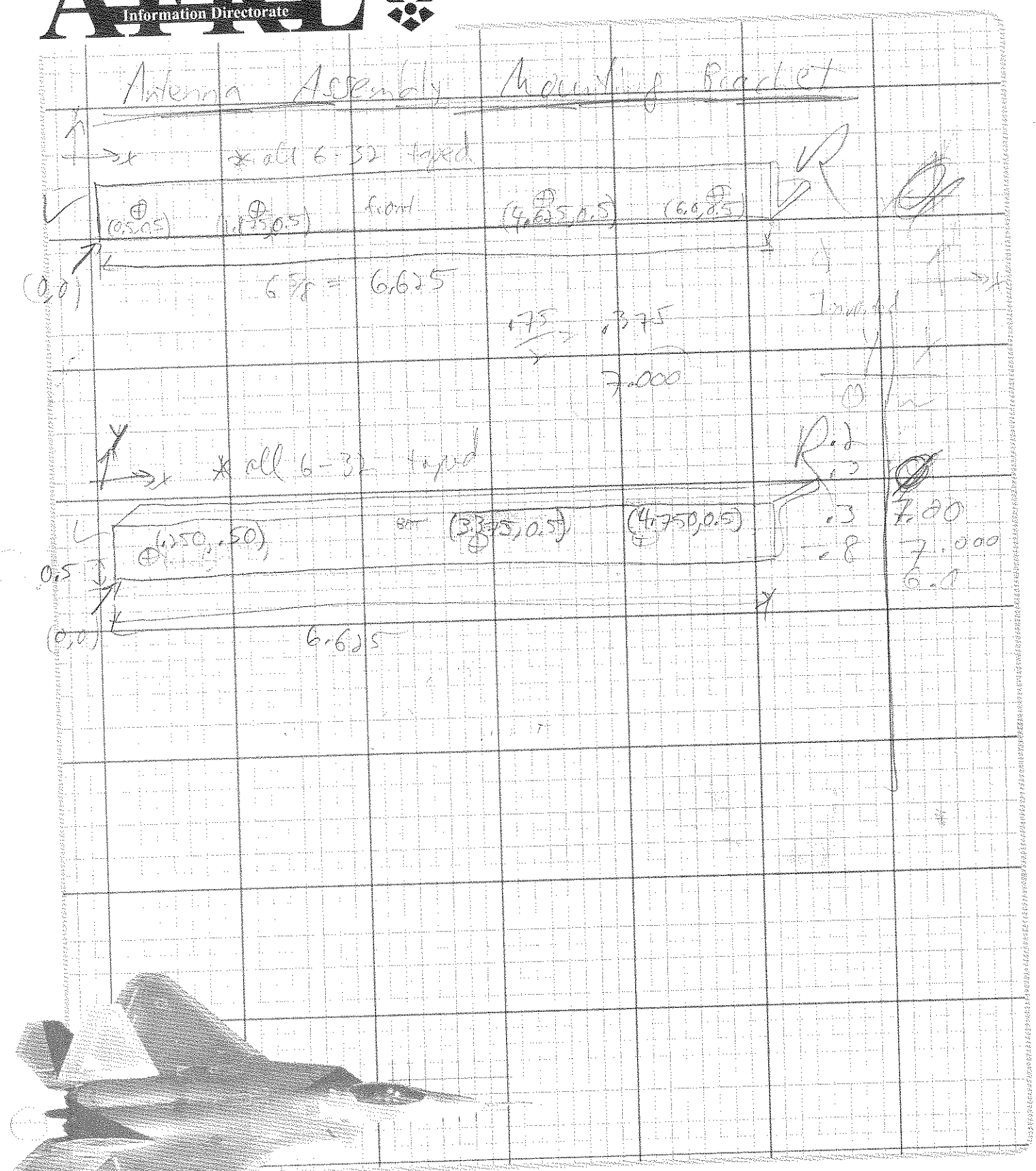

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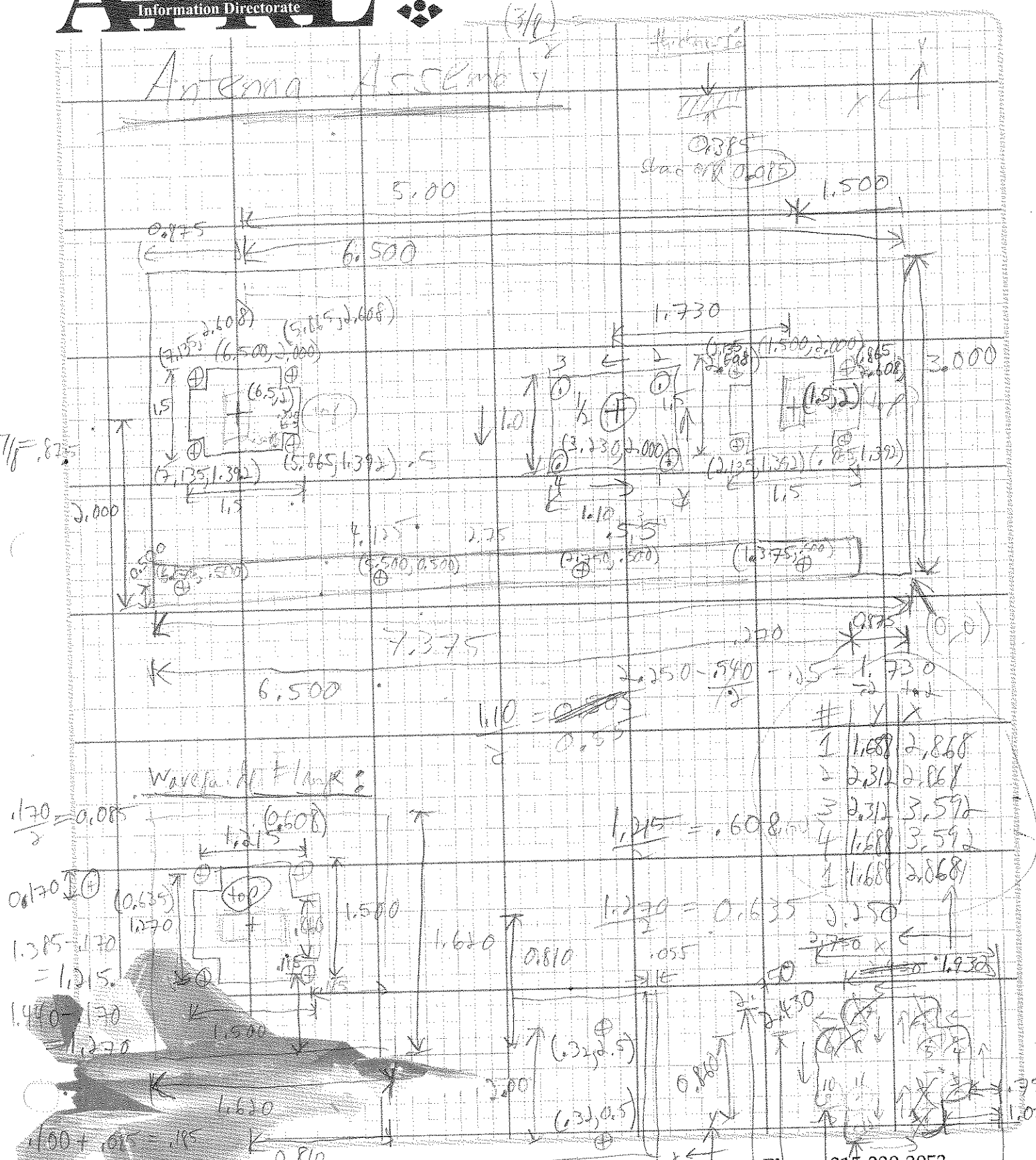

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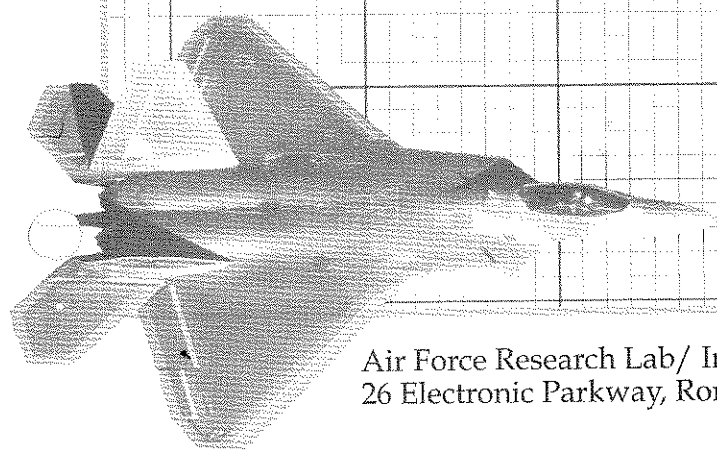
#	y	x
1	1.438	1.258
2	1.758	1.258
3	1.758	.938
4	2.242	.938
5	2.242	1.258
6	2.562	1.258
7	2.562	1.93
8	2.242	2.562
9	2.242	2.562
10	1.758	2.562
11	1.758	2.242
12	1.438	2.242
1	1.438	1.258

#	y	x
1	1.438	6.258
2	1.758	6.258
3	1.758	5.938
4	2.242	5.938
5	2.242	6.258
6	2.562	6.258
7	2.562	6.742
8	2.242	6.742
9	2.242	7.062
10	1.758	7.062
11	1.758	6.742
12	1.438	6.742
1	1.438	6.258



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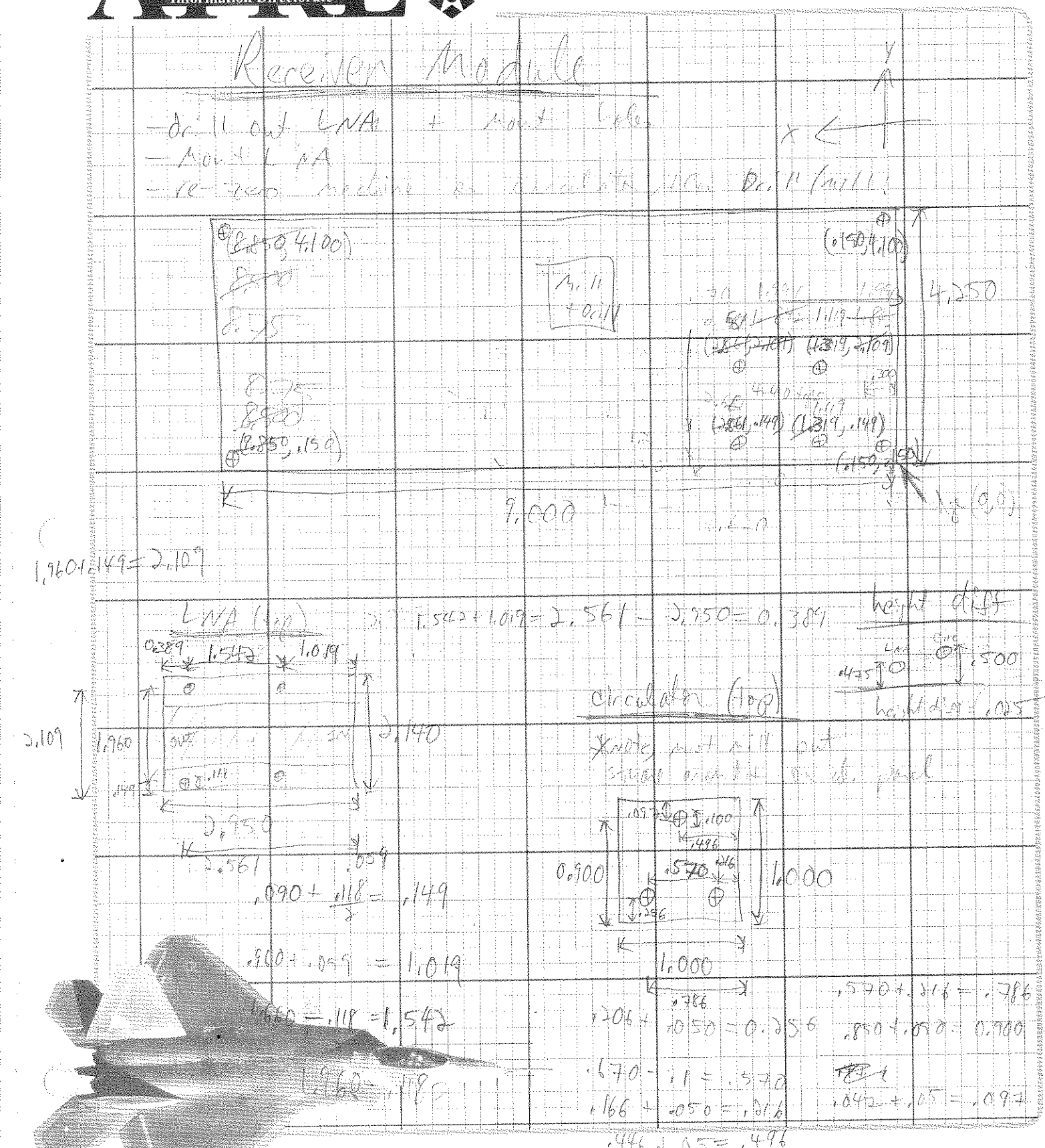

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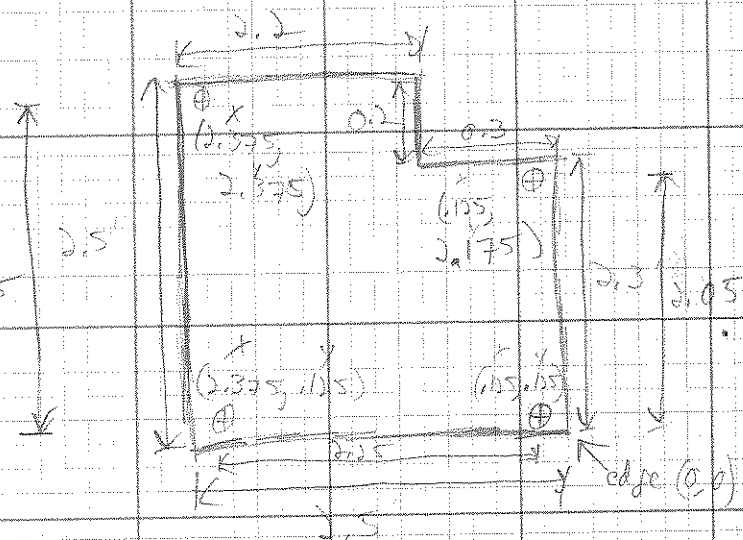
Metal Plate on Aircraft Cover



① cad plate

② drill pilots at specified coordinates

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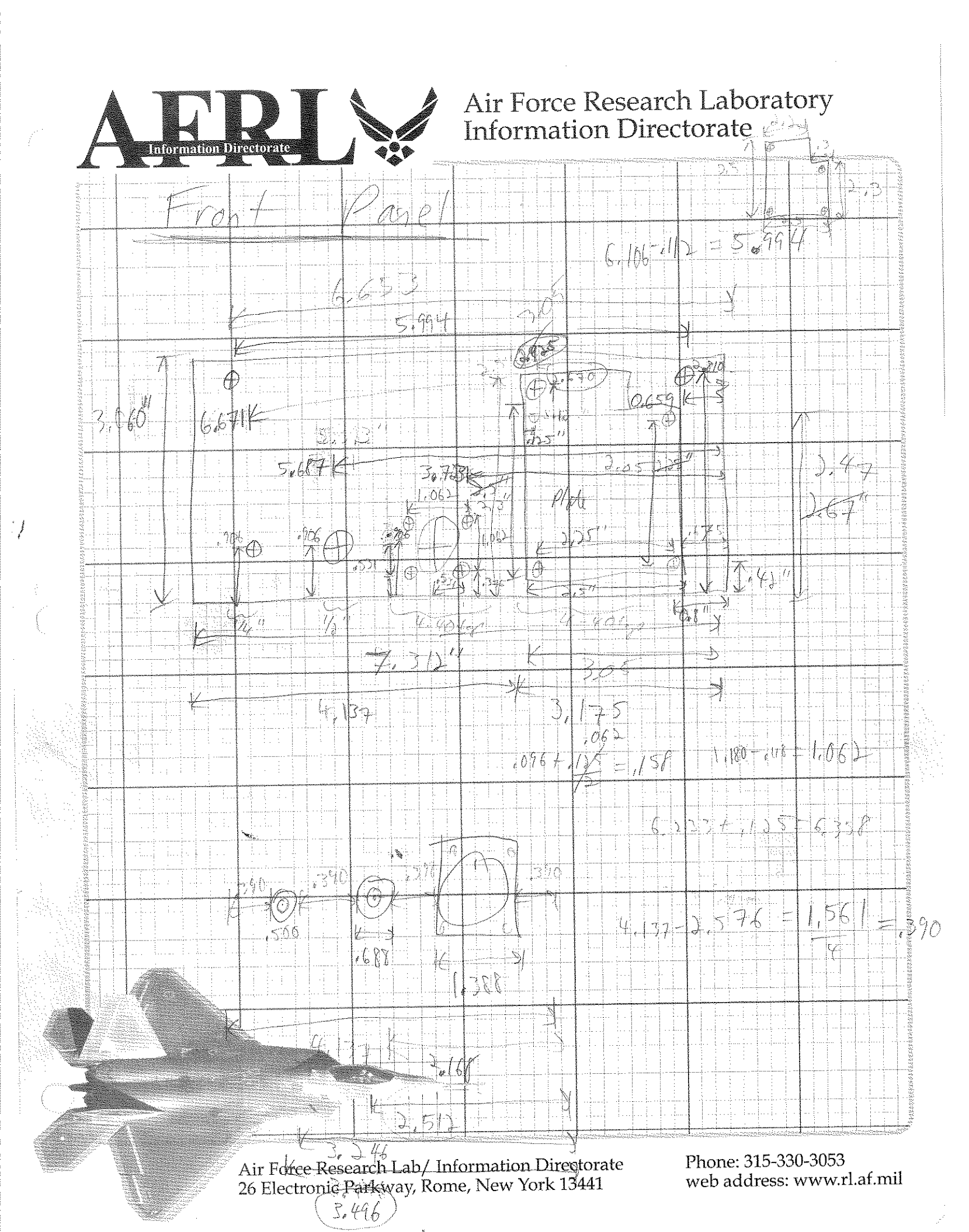

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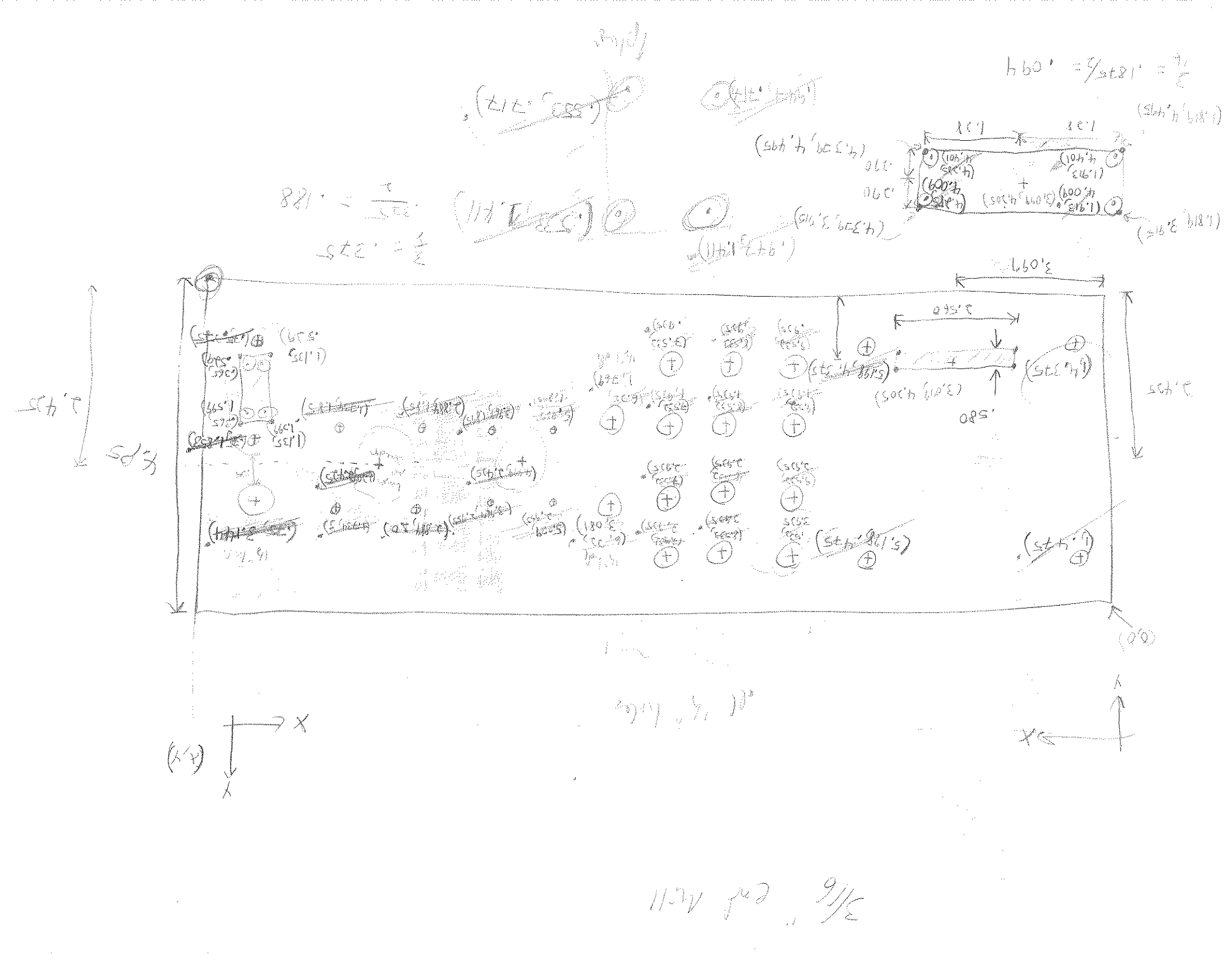
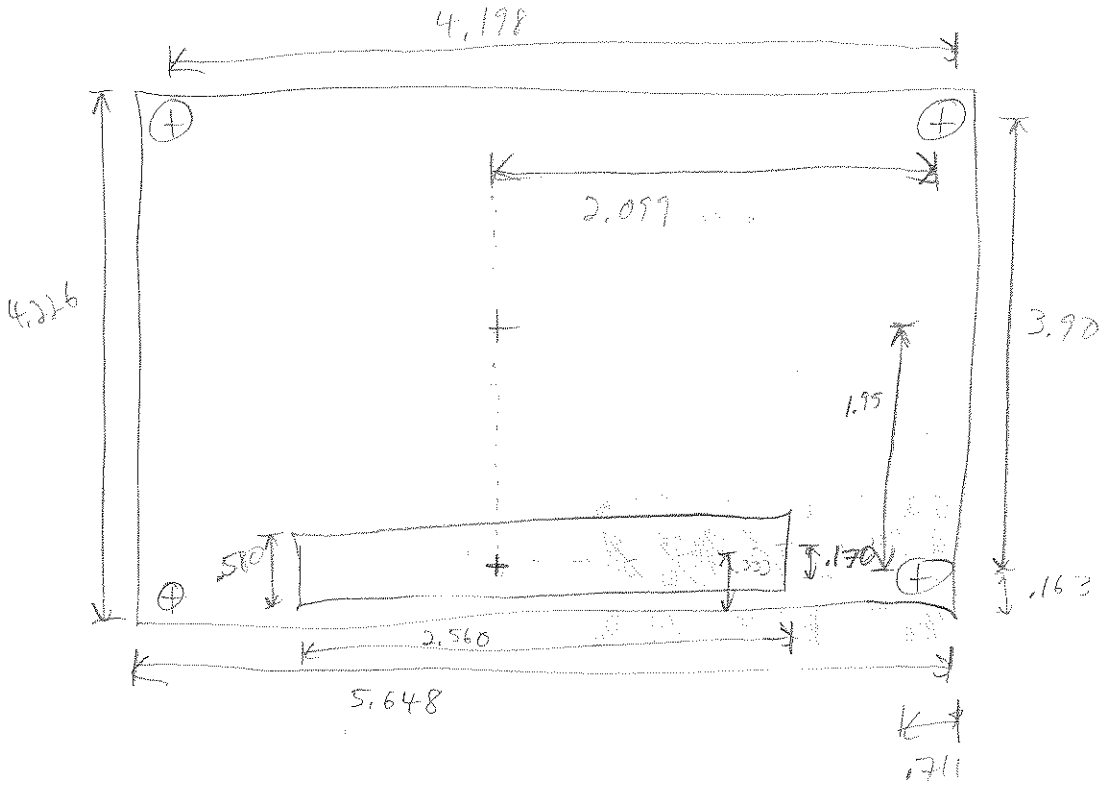

3,091
3,580
3,425
1,580
(0,0)
X
Y

NI CB-68LP Board



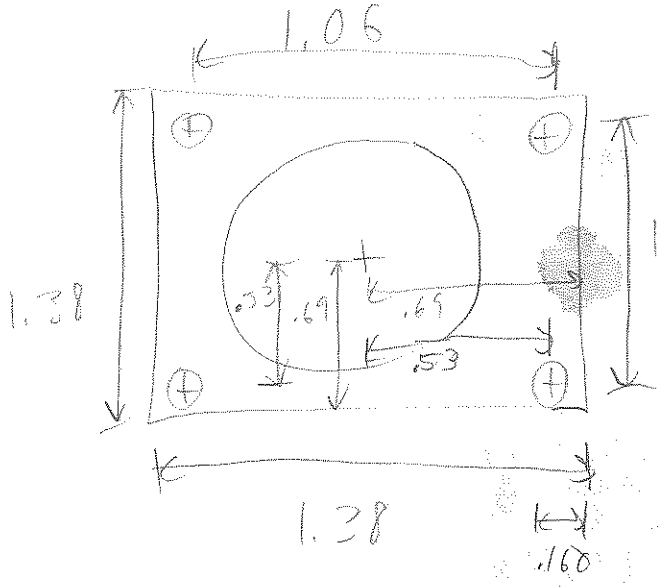
4.024 − .124 = 3.90

4.322 − .124 = 4.198

.278 + .110 = .333

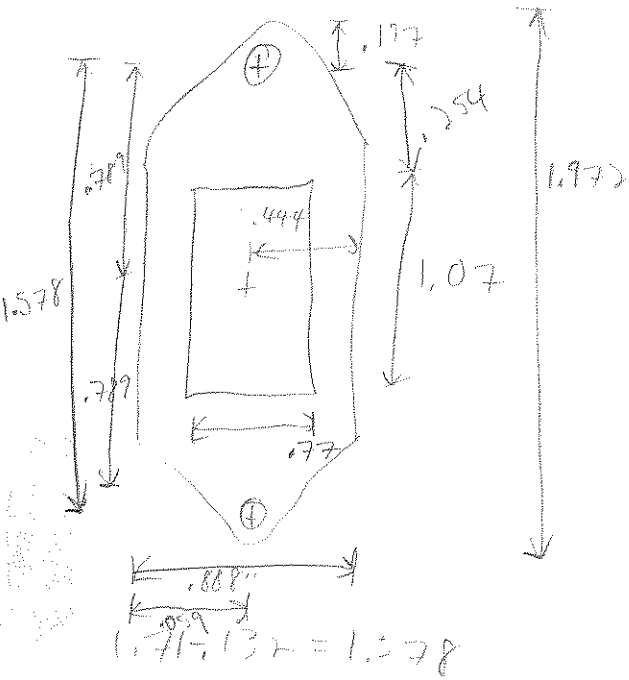
.333 − .163 =

Smaller Mil Connector:



1.18 − .120 = 1.06

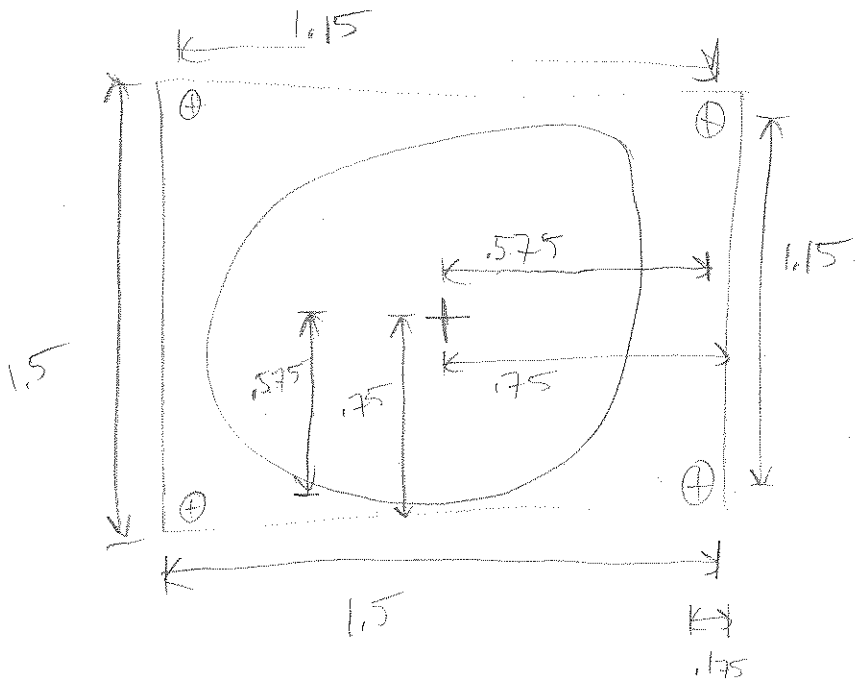
Large Connector:



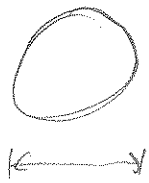
1.771 − .193 = 1.578

Large Mil Connector:

1.27 − .120 = 1.15



Fuse Holder:



O.D. = .668

footprint

1 BNC female:

O.D. = .562

front panel footprint